

### **DETAILED ACTION**

Applicant's response of June 19, 2009 has been fully considered. Claim 1 has been amended and claims 1-7, 9, 10, 13, 13, and 15-21 are pending.

#### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-7, 9, 10, 12, 13, and 15-21 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 1, it is unclear when one grouping of silicon compounds ends and another begins. For example, is group f) part of the broader group of "at least one amino-functional silicon compound" or is it a choice of the groups included under group e). For the purpose of further examination, "at least one amino-functional silicon compound" includes compounds as described by a), b), c), d), e), and f). Additionally, group e) is interpreted to contain a mixture of silicon compounds being chosen from the list that begins in e) and ends at f). If this is correct, appropriate correction is required to make the claim more clear and read as such.

#### ***Claim Rejections - 35 USC § 103***

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1-7, 18 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Roberts et al. (US 6,288,144) in view of Ishizaka et al. (US 4,311,737).

Regarding claims 1, 2, 4, 5, 18 and 21, Roberts et al. teaches a filled polyolefin compound (Col. 4, line 7) comprising a polypropylene base polymer (Col. 4, lines 52-67), a maleic-anhydride-modified polypropylene (Col. 8, lines 20-30 and Col. 6, lines 40-50), a filler such as aluminum hydroxide or magnesium hydroxide (Col. 4, lines 34-51), a polydiorganosiloxane containing at least one polar moiety with all other substituents being methyl groups (Col. 10, lines 1-50, specifically lines 39-43) (corresponds to Formula IV), and other additives such as stabilizers and processing aids

(Col. 11, lines 15-20). Roberts et al. further teaches that with respect to the polar moiety, amino moieties are preferred for improving thermoplastic resin processing (Col. 10, lines 49-50).

Roberts et al. does not teach that the amino moiety is an aminopropyl group, i.e., connected to the silicon by a three carbon long chain. However, Ishizaka et al. teaches silicone compositions comprising polyorganosiloxanes substituted with amino groups where the amino group is preferably bonded to the silicon atom by at least 3 carbon atoms (Col. 2, lines 50-55). Roberts et al. and Ishizaka et al. are analogous art because Ishizaka et al. is reasonably pertinent to a problem of Roberts et al., namely that of the structure of the polyorganosiloxanes. At the time of the invention, a person of ordinary skill in the art would have found it obvious to use a propyl group, as taught by Ishizaka et al., to connect the amino group to the silicon atom in the polydiorganosiloxane, as taught by Roberts et al., and would have been motivated to do so for stability during storage (Col. 2, line 51).

Regarding claim 3, Roberts et al. teaches that the maleic anhydride grafted polypropylene is used in a content of 5% of the total compound (Table 1).

Regarding claim 6, Roberts et al. teaches that the filler is used in an amount of about 1 to about 100 parts by weight based on the total weight of polyolefin (Col. 4, lines 35-41).

Regarding claim 7, Roberts et al. teaches that the organo-modified polysiloxane is used in an amount of from about 0.01 to about 1.0 percent by weight based upon the total weight of the final polymeric material (Col. 4, lines 25-30).

Claims 9-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Roberts et al. (US 6,288,144) in view of Ishizaka et al. (US 4,311,737) as applied to claim 2 above, and further in view of Schlosser et al. (US 2003/0134969) and Kaprinidis (US 2003/0220422).

Roberts et al. and Ishizaka et al. teach the composition as described above. Roberts et al. also teaches mixing all of the compound ingredients together in a suitable mixer, such as an extruder, and making a melt (Col. 11, lines 3-9).

Roberts et al. does not teach heating the mixing assembly. However, Schlosser et al. does teach making filled cable compounds and heating the mixture to a temperature above the melting point of the base polymer (§160). Roberts et al. and Schlosser et al. are analogous art because they are from the same field of endeavor, namely that of filled polyolefin compounds. At the time of the

invention, a person of ordinary skill in the art would have found it obvious to heat the compound during mixing, as taught by Schlosser et al., as part of the process in making the composition, as taught by Roberts et al., and would have been motivated to do so because heating the mixture to above the melting point of the base polymer helps with thorough mixing of the components.

Roberts et al. does not teach that the compound is formed into pellets. However, Kaprinidis does teach making polypropylene compounds and forming them into pellets after mixing (§413). Roberts et al. and Kaprinidis are analogous art because they are from the same field of endeavor, namely that of flame retardant polypropylene compositions. At the time of the invention, a person of ordinary skill in the art would have found it obvious to form the finished compound into pellets, as taught by Kaprinidis, and would have been motivated to do so because the pellets can then be processed into many useful articles through a variety of methods (§413).

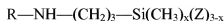
Moreover, at the time of the invention, it would have been obvious to one of ordinary skill in the art to combine Roberts et al., Schlosser et al., and Kaprinidis because they are all from the same field of endeavor, namely that of flame retardant and filled polyolefin compositions.

Claims 12 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Roberts et al. (US 6,288,144) in view of Ishizaka et al. (US 4,311,737) as applied to claim 1 above, and further in view of Chaillie et al. (DE 195 42 157). For convenience, the citations below are taken from an English language machine translation of Chaillie et al., included herewith.

Roberts et al. and Ishizaka et al. teach the composition of claim 1. Roberts et al. does not teach that the compound can be used for cables, which are also polyolefin moldings. However, Chaillie et al. does teach a polymer based mixture of maleic acid anhydride grafted polyethylene and silicone oil that is used for cables (Example I and Page 1, lines 4-5). Roberts et al. and Chaillie et al. are analogous art because they are from the same field of endeavor, namely that of filled polyethylene or polypropylene compounds. At the time of the invention, a person of ordinary skill in the art would have found it obvious to use the composition, as taught by Roberts et al., to make cables, as taught by Chaillie et al., and would have been motivated to do so because the compounds of the references are similar and it is advantageous to make cables from a flame-retardant compound.

Claims 15-17 and 19-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Roberts et al. (US 6,288,144) in view of Ishizaka et al. (US 4,311,737) as applied to claim 1 above, and further in view of Mack et al. (US 6,500,883).

Roberts et al. and Ishizaka et al. teach the basic composition of claim 1. However, Roberts et al. does not teach that the composition contains silicon compounds described as a), b), c), e) and f). However, Mack et al. teaches filled compositions containing one of three groupings of organosiloxane compounds. Group one is an amino-functional silicon compound of the general formula



in which the groups Z are identical or different and Z is an alkoxy group having from 1 to 3 carbon atoms, x is 0 or 1, and R is a linear or branched alkyl group having from 1 to 20 carbon atoms (Col. 3, lines 1-10) or a bisaminosilane, preferably of the formula  $[(\text{H}_3\text{C}_2\text{O})_3\text{Si}(\text{CH}_2)_3\text{NH}(\text{CH}_2)_3\text{Si}(\text{OC}_2\text{H}_5)_3]$  (Col. 3, lines 14-16). These compounds correspond to b) in the instant claim 1 and claim 16 and c) in the instant claim 1 and claim 17. Group two comprises an amino-functional silicon compound of the general formula



in which the groups Z are identical or different and Z is an alkoxy group having from 1 to 3 carbon atoms, x is 0 or 1 and R is an amino group of the formula  $\text{H}_2\text{N}-[(\text{CH}_2)_2\text{NH}]_y(\text{CH}_2)_3$ , where y is 0, 1, or 2 (Col. 3, lines 25-35) and an alkenyl functional silicon compound (a vinyl silane) (Col. 3, lines 50-55). This combination corresponds to f) in the instant claim 1 and claim 20, as well as a) in claim 1 and claim 15. Additionally, when one of these amino-functional silicon compounds is added the composition, combination e) of instant claim 1 and claim 19 is obtained.

Roberts et al. and Mack et al. are analogous art because they are from the same field of endeavor, namely that of filled compositions containing functional silicon compounds. At the time of the invention, a person of ordinary skill in the art would have found it obvious to use the above amino functionalized silicon compound, as taught by Mack et al., in the composition, as taught by Roberts et al., and would have been motivated to do so because they provide good strength properties with good impact resistance properties (Col. 2, lines 39-40).

### ***Response to Arguments***

Applicant's arguments filed June 19, 2009 have been fully considered but they are not persuasive.

In response to applicant's argument that Ishizaka et al. is nonanalogous art, it has been held that a prior art reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the applicant was concerned, in order to be relied upon as a basis for rejection of the claimed invention. See *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992). In this case, Ishizaka et al. pertains to polyorganosiloxanes and certain structural attributes that could be applied to a variety of siloxanes and their uses. Roberts et al. also describes a particular polyorganosiloxane and Ishizaka et al. helps to further define its structure with motivation. Therefore, Ishizaka et al. is considered analogous art.

Applicants argue that Schlosser et al., Kaprinidis, and Chaillie et al. do not address the deficiencies of Roberts et al. and Ishizaka et al. Roberts et al. and Ishizaka et al. are analogous art and combinable, as discussed above, and therefore, it is not necessary for Schlosser et al., Kaprinidis, or Chaillie et al. to address these issues covered by Roberts et al. and Ishizaka et al.

In response to applicant's argument that Mack et al. is nonanalogous art, it has been held that a prior art reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the applicant was concerned, in order to be relied upon as a basis for rejection of the claimed invention. See *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992). In this case, Mack et al. does have a polyamide as a base resin but it uses the same types of fillers that Roberts et al. uses as well as each reference incorporating functionalized silicon compounds. Therefore, Roberts et al. and Mack et al. are analogous art based on use of similar fillers and silicon containing compounds. It does not matter that they do not use the same base resin.

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

### *Correspondence*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Angela C. Scott whose telephone number is (571) 270-3303. The examiner can normally be reached on Monday through Friday, 8:30am to 5:00pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Eashoo can be reached on (571) 272-1197. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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